RLP-ALG1A · RLP Algebra 1A — Data, Linear Equations and Systems

Unit 2: Linear Equations and Inequalities in One Variable

Practice Workbook. The same problems, in the same order, as the Practice sections of the online lessons.

Name _____ Period _____

Lesson 2.1 — Expressions That Tell a Story: Terms, Factors and Coefficients

FLUENCY

1. Solve: $3x - 7 = -34$

2. Solve: $4x + 8 = 24$

3. Solve: $9x - 3 = 69$

4. Solve: $5x - 7 = 28$

5. Evaluate $3x^2 - 2x + 5$ when $x = -2$.

6. Simplify $4(2x - 3) - (x - 7)$.

7. In $45 + 3.5h$, name the terms, the coefficient and the constant.

APPLICATION

8. A club rents a farmers-market booth for $45 and sells strawberry baskets for $4.50 each; each basket costs $1.75. Write the profit for b baskets and find how many baskets give at least $200 profit.

9. The rideshare fare in Lesson 2.1 is $2.50 + 1.80m + 0.35t$. How many miles is a 20-minute ride that costs $30?

10. A rectangular garden bed has perimeter 86 feet, and its length is 7 feet more than its width. Find the dimensions.

CHALLENGE

11. For the tamale fundraiser, revenue is 3n and cost is 120 + 0.75n. For what n is revenue three times cost? Show that revenue can never be four times cost.

REVIEW

12. For the data 4, 7, 13, 14, 22, 29, 37: find the mean, median, range and interquartile range. (Find the quartiles as the medians of the lower and upper halves, leaving out the overall median when the count is odd.)

13. Find the MAD of 3, 5, 7, 9.

Lesson 2.2 — Solving Linear Equations and Justifying Every Step

FLUENCY

1. Solve: $-8x + 2 = -62$

2. Solve: $9x - 15 = 39$

3. Solve: $-3x - 12 = -12$

4. Solve: $-3(x - 1) + 1 = 22$

5. Solve: $5(x + 3) - 10 = -15$

6. Solve: $6(x - 8) - 9 = -15$

7. Solve: $-3x - 4 = -6x - 28$

8. Solve: $-9x - 1 = -6x - 10$

9. Solve: $x = -8x - 72$

APPLICATION

10. Climbing gym A charges a $40 sign-up fee plus $12 a visit; gym B charges $18 a visit. For how many visits in a month is gym B cheaper?

11. Solve $(x + 4)/3 = (2x - 1)/5$ and check.

12. Three consecutive integers add to 108. Find them.

CHALLENGE

13. Solve $ax + b = cx + d$ for x, state the condition, and use your formula on $7x + 3 = 2x + 23$.

REVIEW

14. For the data 3, 3, 4, 5, 16, 23, 24, 27, 29: find the mean, median, range and interquartile range. (Find the quartiles as the medians of the lower and upper halves, leaving out the overall median when the count is odd.)

15. Find the IQR of 1, 3, 4, 6, 9, 10, 12.

Lesson 2.3 — Where Did It Go Wrong? Inequalities and Rearranged Formulas

FLUENCY

1. Solve and graph on a number line: $7x - 7 \leq -21$

2. Solve and graph on a number line: $3x - 10 \geq -19$

3. Solve and graph on a number line: $8x + 4 < -52$

4. Solve and graph on a number line: $7x + 2 \geq -19$

5. Solve and graph on a number line: $7x - 2 < -9$

6. Solve and graph on a number line: $6x + 1 > 37$

7. Solve A = (1/2)bh for h.

8. Solve d = rt for t.

9. Solve y = mx + b for x.

APPLICATION

10. A student has saved $185 toward a $749 laptop and earns $15.50 an hour (illustrative). How many whole hours must she work?

11. A Death Valley afternoon reaches 104°F (illustrative). Convert it to Celsius with $C = (5/9)(F - 32)$.

12. A phone plan costs $35 plus $8 for each gigabyte over the limit. The budget is at most $75. How many extra gigabytes can you use?

CHALLENGE

13. Solve $-3(2x - 5) + 4 > 2(x + 1) - 7$ and test one value in your answer.

REVIEW

14. For the data 3, 7, 8, 13, 22, 23, 32, 36, 37, 39: find the mean, median, range and interquartile range. (Find the quartiles as the medians of the lower and upper halves, leaving out the overall median when the count is odd.)

15. Which pair of statistics should summarize a strongly skewed data set?

Lesson 2.4 — Absolute Value as Distance: Tolerances and Alarms

FLUENCY

1. Solve: $|x - 4| = 7$
2. Solve: $|x + 2| = -2$
3. Solve: $|x - 1| = 4$
4. Solve: $|x - 5| = 4$
5. Solve and graph: $|x + 1| \geq 9$
6. Solve and graph: $|x + 5| < 8$

7. Solve and graph: $|x + 1| \geq 8$

8. Solve and graph: $|x| < 8$

APPLICATION

9. Missouri pecan bags are labeled 16 oz with a tolerance of 0.3 oz. Write and solve an absolute value inequality for acceptable weights w.

10. An aquarium alarm sounds when the water is more than 3°F from 76°F. Write and solve the alarm condition.

11. Solve $|3x + 6| = 15$.

12. A delivery arrives between 45 and 75 minutes after ordering. Write this as an absolute value inequality.

CHALLENGE

13. Solve $|2x - 7| \leq x + 1$.

REVIEW

14. For the data 3, 3, 6, 19, 20, 26, 35, 35, 35: find the mean, median, range and interquartile range. (Find the quartiles as the medians of the lower and upper halves, leaving out the overall median when the count is odd.)

15. The data 4, 6, 7, 9, 14 have mean 8. Find the standard deviation (divide by n) to two decimals.

Unit 2 checkpoint

1. In the profit expression $2.25n - 120$, what does -120 represent?
   A. The fixed cost
   B. Profit per item
   C. Items sold
   D. Total revenue

2. Solving $5(x - 3) + 2 = 3x + 11$ gives $x =$ _____.

3. Solve $-4x + 7 > 19$.
   A. $x < -3$
   B. $x > -3$
   C. $x < 3$
   D. $x > 3$

4. True or false: The equation $2(x + 3) = 2x + 5$ has no solution.

5. Solving $F = (9/5)C + 32$ for C gives $C = (5/9)(F -$ _____$)$.

6. Solve $|x - 3| = 8$.
   A. $x = 11$ or $x = -5$
   B. $x = 11$
   C. $x = 5$ or $x = -11$
   D. No solution

7. Which describes $|t - 68| > 4$?
   A. $t < 64$ or $t > 72$
   B. $64 < t < 72$
   C. $t > 72$
   D. $t < 64$

8. True or false: $|x + 1| = -3$ has no solution.

9. The club needs $2.25n - 120 \geq 450$, so it must sell at least _____ tamales.

10. A pass costs $86 and a ride $2.50. For how many rides is the pass cheaper?
    A. 35 or more
    B. 34 or more
    C. 86 or more
    D. 30 or more

11. The interval $60 \leq m \leq 70$ is $|m -$ _____$| \leq 5$.

12. True or false: Dividing both sides of an inequality by a positive number reverses it.

Sejal Learning Systems · Royal Legacy Preparatory School · Generated from the course's practice files; generated problems are checked by computer, authored problems by their author.